Tactical Field Care Guidelines

5. Intravenous (IV) access

- Start an 18-gauge IV or saline lock if indicated.
- If resuscitation is required and IV access is not obtainable, use the intraosseous (IO) route.

IV Access – Key Point

- **NOT ALL CASUALTIES NEED IVs!**
  - IV fluids not required for minor wounds
  - IV fluids and supplies are limited – save them for the casualties who really need them
  - IVs take time
  - Distract from other care required
  - May disrupt tactical flow – waiting 10 minutes to start an IV on a casualty who doesn’t need it may endanger your unit unnecessarily

IV Access

Indications for IV access

- Fluid resuscitation for hemorrhagic shock or
  - Significant risk of shock – GSW to torso
- Casualty needs medications, but cannot take them PO:
  - Unable to swallow
  - Vomiting
  - Shock
  - Decreased state of consciousness

IV Access

A single 18ga catheter is recommended for access:

- Easier to start than larger catheters
- Minimizes supplies that must be carried
- All fluids carried on the battlefield can be given rapidly through an 18-gauge catheter.
- Two larger gauge IVs will be started later in hospitals if needed.

IV Access – Key Points

- Don’t insert an IV distal to a significant wound!
- A saline lock is recommended instead of an IV line unless fluids are needed immediately.
  - Much easier to move casualty without the IV line and bag attached
  - Less chance of traumatic disinsertion of IV
  - Provides rapid subsequent access if needed

Video: Rugged Field IV Setup (1) Start a Saline Lock and Cover with Tegoderm® or Equivalent

Video: Rugged Field IV Setup (2) Flush Saline Lock with 5 cc of IV Fluid

aline lock must be flushed immediately (within 2-3 minutes)
nd then flushed every 2 hours if IV fluid is not running.

Video: Rugged Field IV Setup (3) Insert Second Needle/Catheter and Connect IV

Video: Rugged Field IV Setup (4) Secure IV Line with Velcro Strap

Video: Rugged Field IV Setup (5) Remove IV as Needed for Transport

Questions?

Intraosseous (IO) Access

If unable to start an IV and fluids or meds are needed
urgently, insert a sternal I/O line to provide

FAST1® IO Device

FAST1® Warnings

FAST1® NOT RECOMMENDED IF:

- Patient is of small stature:
  - Weight of less than 50 kg (110 pounds)
  - Less than 12 years old
- Fractured manubrium/sternum – flail chest
- Significant tissue damage at site – trauma, infection
- Severe osteoporosis
- Previous sternotomy and/or scar
- **NOTE: FAST1® INFUSION TUBE SHOULD NOT BE LEFT IN PLACE FOR MORE THAN 24 HOURS**

FAST1® Flow Rates

- 30-80 ml/min by gravity
- 120 ml/min utilizing pressure infusion
- 250 ml/min using syringe forced infusion

FAST1® Insertion (1)

1. Prepare site using aseptic technique:
   - Betadine
   - Alcohol

FAST1® Insertion (2)

- Remove backing labeled #1
- Put index finger in sternal notch

FAST1® Insertion (3)

- Place Target Patch notch under index finger in sternal notch
- Press down firmly over top of Patch
- Remove backing labeled #2,

FAST1® Insertion (4)

- Place introducer needle cluster in target area
- Assure firm grip
- **Introducer device must be perpendicular to the surface of the manubrium!**

FAST1® Insertion (5)

- Align introducer perpendicular to the manubrium.
- Insert using increasing pressure till device releases. (~60 pounds)
- Maintain 90-degree alignment to

FAST1® Insertion (6)

- Following device release, infusion tube separates from introducer
- Remove introducer by pulling straight back
- Cap introducer using post-use sharps plug and cap supplied

FAST1® Insertion (7)

- Connect infusion tube to tube on the target patch
- NOTE: Must flush bone plug with 5 cc of fluid to get flow.
- Assure patency by using syringe to aspirate

FAST1® Insertion (8)

- Connect IV line to target patch tube
- Open IV and assure good flow
- Place dome to protect infusion site

FAST1® Insertion (9)

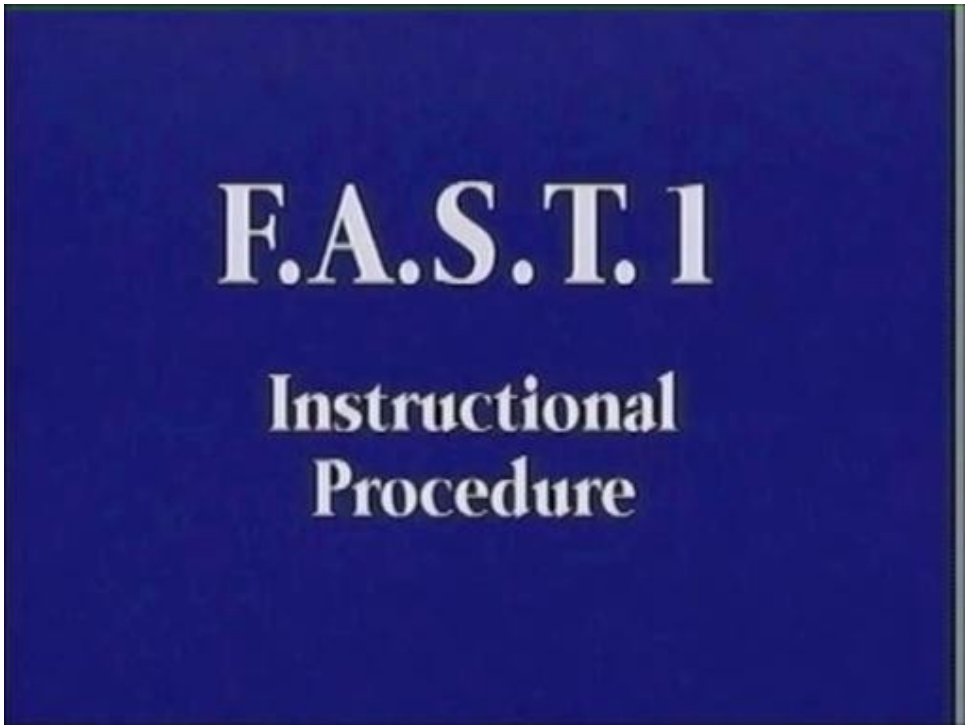
Potential Problems:

- Infiltration
  - Usually due to insertion not perpendicular to sternum
- Inadequate flow or no flow
  - Infusion tube occluded with bone plug
  - Use additional saline flush to clear the bone plug

FAST1® Access – Key Points

- **DO NOT insert the FAST1® on volunteers as part of training – use the training device provided.**
- Should not have to remove in the field – it can be removed at the medical treatment facility.

FAST1® Insertion Video

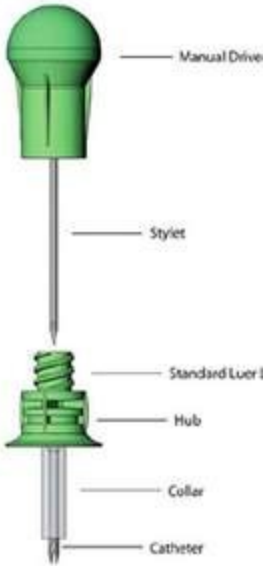


Key Point Not Shown in Video

- Remember to run IV fluids through the IV line before connecting.

EZ-IO®

- After Pyng FAST1 ®, Vidacare's EZ-IO ® is the next most commonly used IO device in combat.
- Overall experience with these devices has been favorable.
- Multiple EZ-IO devices are available. It is absolutely essential to use the right device for the chosen anatomical location.



Questions?
IV/IO Practical

Tactical Field Care Guidelines

6. Tranexamic Acid (TXA)

If a casualty is anticipated to need significant blood transfusion (for example: presents with hemorrhagic shock, one or more major amputations, penetrating torso trauma, or evidence of severe bleeding)

- **Administer 1 gram of tranexamic acid (TXA) in 100 cc Normal Saline or Lactated Ringer's as soon as possible but NOT later than 3 hours after injury.**
- **Begin second infusion of 1 gm TXA after Hextend or other fluid treatment.**

Stop All Bleeding Now!

- TXA helps with hemorrhage control.
  - Tourniquets and hemostatic dressings help by stopping hemorrhage from external sites.
  - TXA helps to reduce blood loss from internal hemorrhage sites that can’t be addressed by tourniquets and hemostatic dressings.

Got Bleeding?

NOW APPROVED FOR POINT OF INJURY

Tranexamic Acid

TXA

LNOME: TRANEXAMIC ACID INJECTION 1 ML OF STER SOL 10 ML AMPULES 10S

NSN: 6505-015917298

Technical Questions: 318-431-4441
or JTTS_LDRS.MAIL@swa.army.mil

ASDHA Letter
9 October 2013

“Traumatic hemorrhage remains the leading cause of death on the battlefield….. Joint Theater Trauma experts recommended adding TXA as an adjunct to severe hemorrhage management. Presently, TXA is not FDA-approved for this indication, and as such is considered an off-label use subject to a provider‘s clinical judgment in a practitioner-patient relationship.”

ASDHA Letter 9 October 2013

“The Military Services and the Combatant Commands may authorize such use of TXA in the combat environment, consistent with current clinical practice guidelines and appropriate clinical oversight. The Services will accumulate outcome data and monitor adverse events. The Services will establish Service-specific policies regarding TXA administration, develop training and education plans, and assume all costs for implementation. TXA may be

TXA

- **Hemorrhage is the leading cause of preventable death on the battlefield**
- **Tourniquets and Combat Gauze do not work for *internal* bleeding**
- **TXA does!**

TXA

- TXA does not promote new clot formation
- Prevents forming clots from being broken down by the body
- Helps stop the bleeding
- Helps prevent death from hemorrhage
- **Two major studies have shown a survival benefit from TXA**, especially in casualties that require a massive transfusion of blood products

TXA

- **Survival benefit GREATEST when given within 1 hour of injury**
- Survival benefit still present when given within 3 hours of injury
- **DO NOT GIVE TXA if more than 3 hours have passed since the casualty was injured – survival is DECREASED by TXA given after this point**
- *DON'T DELAY WITH TXA!*

TXA

- Trade name: Cyklokapron®
- FDA-approved
- Possible side effects:
  - Nausea, vomiting, diarrhea
  - Visual disturbances
  - Possible increase in risk of post-injury blood clots
  - Hypotension if given as IV bolus

TXA Storage and Handling

- Recommended temperature range for storage: 59°-86° F
- Must protect this drug from environmental extremes
- Store and transport in air conditioned spaces
- On missions, carry in small insulated container
- In very cold temperatures, carrying TXA next to the body on missions will protect from cold
- Carriage in aid bag also acts as insulator against temperature extremes

TXA Administration – 1st Dose

- Supplied in 1 gram (1000 mg) ampoules
- Should NOT be given with Hextend or through an IV line with Hextend in it
- Inject 1 gram of TXA into a 100-cc bag of normal saline or lactated ringer’s
- Infuse slowly over 10 minutes
- Rapid IV push may cause hypotension
- If there is a new-onset drop in BP during the infusion – SLOW DOWN the TXA infusion
- Then administer blood products or

TXA Administration – 2nd Dose

- Typically given after the casualty arrives at a Role II/Role III medical facility
- May be given in field if evacuation is delayed and fluid resuscitation has been completed before arrival at the medical facility
- If still in field or in TACEVAC when fluid resuscitation is complete, give second dose of TXA as directed for the first dose

Questions?

Blood Loss and Shock

What is “Shock?”

- Inadequate blood flow to the body tissues
- Leads to inadequate oxygen delivery and cellular dysfunction
- May cause death
- Shock can have many causes, but on the battlefield, it is typically caused by severe blood loss

Blood Loss and Shock

Question: How does your body react to blood loss?

Answer: It depends – on how much blood you lose.

Normal Adult Blood Volume
5 Liters

500cc Blood Loss

4.5 Liters Blood Volume

500cc Blood Loss

- Mental State: Alert
- Radial Pulse: Full
- Heart Rate: Normal or slightly increased
- Systolic Blood pressure: Normal
- Respiratory Rate: Normal
- Is the casualty going to die from this?

No

1000cc Blood Loss

4.0 Liters Blood Volume

1000cc Blood Loss

- Mental State: Alert
- Radial Pulse: Full
- Heart Rate: 100 +
- Systolic Blood pressure: Normal lying down
- Respiratory Rate: May be normal
- Is the casualty going to die from this?

No

1500cc Blood Loss

1500cc Blood Loss

- Mental State: Alert but anxious
- Radial Pulse: May be weak
- Heart Rate: 100+
- Systolic Blood pressure: May be decreased
- Respiratory Rate: 30
- Is the casualty going to die from this?

Probably not

2000cc Blood Loss

3.0 Liters Blood Volume

2000cc Blood Loss

- Mental State: Confused/lethargic
- Radial Pulse: Weak
- Heart Rate: 120 +
- Systolic Blood pressure: Decreased
- Respiratory Rate: >35
- Is the casualty going to die from this?

Maybe

2500cc Blood Loss

2.5 Liters Blood Volume

2500cc Blood Loss

- Mental State: Unconscious
- Radial Pulse: Absent
- Heart Rate: 140+
- Systolic Blood pressure: Markedly decreased
- Respiratory Rate: Over 35
- Is he going to die from this?

Probably

Recognition of Shock on the Battlefield

- Combat medical personnel need a fast, reliable, low-tech way to recognize shock on the battlefield.
- **The best TACTICAL indicators of shock are:**
  - **Decreased state of consciousness (if casualty has not suffered TBI)**

    and/or
  - **Abnormal character of the radial pulse (weak or absent)**

Fluid Resuscitation Strategy

- If signs of shock are present, ***CONTROL THE BLEEDING FIRST***, if at all possible.
- Hemorrhage control takes precedence over infusion of fluids.

Goals for Fluid Resuscitation

There are four objectives of prehospital fluid resuscitation for casualties in hemorrhagic shock:

1) Enhance the body's ability to form clots at sites of active bleeding
2) Minimize adverse effects (edema and dilution of clotting factors) resulting from iatrogenic resuscitation injury
3) Restore adequate intravascular volume and organ perfusion prior to definitive surgical control of hemorrhage
4) Optimize oxygen carrying capacity

Tactical Field Care Guidelines

7. Fluid resuscitation
   a. The resuscitation fluids of choice for casualties in hemorrhagic shock, listed from most to least preferred, are: whole blood*; plasma, RBCs and platelets in 1:1:1 ratio*; plasma and RBCs in 1:1 ratio; plasma or RBCs alone; Hextend; and crystalloid (Lactated Ringers or Plasma-Lyte A).

Tactical Field Care Guidelines

7. Fluid resuscitation
   b. Assess for hemorrhagic shock (altered mental status in the absence of brain injury and/or weak or absent radial pulse).
      1. If not in shock:
         - No IV fluids are immediately necessary.
         - Fluids by mouth are permissible if the casualty is conscious and can swallow.

Tactical Field Care Guidelines

7. Fluid resuscitation

b2. If in shock and blood products are available under an approved command or theater blood product administration protocol:

- Resuscitate with whole blood*, or, if not available
- Plasma, RBCs and platelets in a 1:1:1 ratio*, or, if not available
- Plasma and RBCs in 1:1 ratio, or, if not available;
- Reconstituted dried plasma, liquid plasma or thawed plasma alone or RBCs alone.
- Reassess the casualty after each unit. Continue resuscitation until a palpable radial pulse, improved mental status or

Tactical Field Care Guidelines

7. Fluid resuscitation

b3. If in shock and blood products are not available under an approved command or theater blood product administration protocol due to tactical or logistical constraints:

- Resuscitate with Hextend, or if not available;
- Lactated Ringers or Plasma-Lyte A.
- Reassess the casualty after each 500 mL IV bolus.
- Continue resuscitation until a palpable radial pulse, improved mental status, or systolic BP of 80-90 mmHg is present.
- Discontinue fluid administration when one or more of the above end

Tactical Field Care Guidelines

7. Fluid resuscitation

   b4. If a casualty with an altered mental status due to suspected TBI has a weak or absent peripheral pulse, resuscitate as necessary to restore and maintain a normal radial pulse. If BP monitoring is available, maintain a target systolic BP of at least 90 mmHg.

Tactical Field Care Guidelines

7. Fluid resuscitation

b5. Reassess the casualty frequently to check for recurrence of shock. If shock recurs, recheck all external hemorrhage control measures to ensure that they are still effective and repeat the fluid resuscitation as outlined above.

Tactical Field Care Guidelines

7. Fluid resuscitation

* Neither whole blood nor apheresis platelets as these products are currently collected in theater are FDA-compliant. Consequently, whole blood and 1:1:1 resuscitation using apheresis platelets should be used only if all of the FDA-compliant blood products needed to support 1:1:1 resuscitation are not available, or if 1:1:1 resuscitation is not producing the desired clinical effect.

Fluid Resuscitation Strategy

If the casualty is not in shock:

- **No IV fluids necessary – SAVE IV FLUIDS FOR CASUALTIES WHO REALLY NEED THEM.**
- PO fluids permissible if casualty can swallow
  - Helps treat or prevent dehydration
  - OK, even if wounded in abdomen
    - Aspiration is extremely rare; low risk in light of benefit
    - Dehydration increases mortality

Hypotensive Resuscitation

Goals of Fluid Resuscitation Therapy

- Improved state of consciousness (if no TBI)
- Palpable radial pulse corresponds roughly to systolic blood pressure of 80 mm Hg
- Avoid over-resuscitation of shock from torso wounds.
- **Too much fluid volume may make internal hemorrhage worse by**

Fluid Resuscitation from Hemorrhagic Shock

Hypotensive Resuscitation Saves Lives in Non-Compressible Hemorrhage!

- Giving more fluid than necessary to reach the end points previously noted may increase bleeding from internal bleeding sites
- **DO NOT start your fluid resuscitation by giving two liters of LR or NS wide open before re-assessing your casualty!**

Fluid Resuscitation from Hemorrhagic Shock

Why not use these fluids?

- Albumin – not recommended for casualties with TBI
- Voluven
  - More expensive than Hextend
  - Also reported to cause kidney injury
- Normal saline – causes a hyperchloremic acidosis
- Hypertonic saline
  - Volume expansion is larger than NS, but short-lived

Questions?

Tactical Field Care Guidelines

8. Prevention of hypothermia
   a. Minimize casualty's exposure to the elements. Keep protective gear on or with the casualty if feasible.
   b. Replace wet clothing with dry if possible. Get the casualty onto an insulated surface as soon as possible.
   c. Apply the Ready-Heat Blanket from the Hypothermia Prevention and Management Kit (HPMK) to the casualty's torso (not directly on the skin) and cover the casualty with the Heat-Reflective Shell (HRS).

Tactical Field Care Guidelines

8. Prevention of hypothermia (cont)
   d. If an HPMK is not available, the previously recommended combination of the Blizzard Survival Blanket and the Ready Heat blanket may also be used.
   e. If the items mentioned above are not available, use dry blankets, poncho liners, sleeping bags, or anything that will retain heat and keep the casualty dry.
   f. Warm fluids are preferred if IV fluids are required.

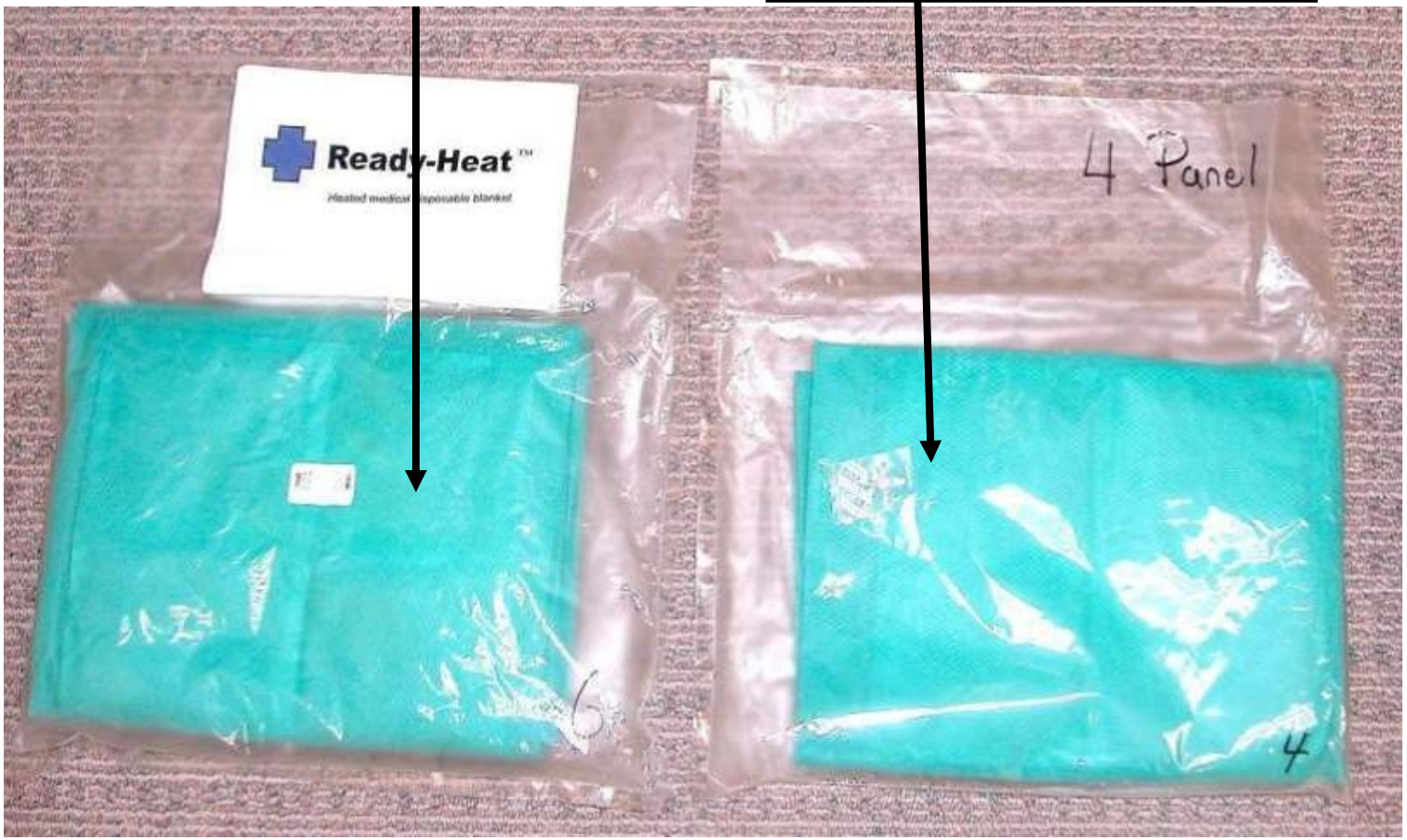
THE OLD HPMK

6 – Cell

"Ready-Heat"
Blanket

4- Cell

"Ready-Heat"
Blanket



Apply Ready Heat blanket to torso OVER shirt.

Repeat

- Do **NOT** place the ready-Heat Blanket directly on the skin
- Multiple reports of skin burns from this being done
- Keep cammie top or T-shirt on
- Place Ready-Heat over the fabric

NEW HPMK

Hypothermia Prevention &
Management Kit™ (HPMK™)
PN: 80-0027 NSN: 6515-01-532-8056
Kit Contains:
• 1 ea Heat Reflective Shell with Built-In Hood
• 1 ea Self-Heating Shell Liner
NORTH AMERICAN RESCUE

Hypothermia Prevention

- **Key Point: Even a small decrease in body temperature can interfere with blood clotting and increase the risk of bleeding to death.**
- Casualties in shock are unable to generate body heat effectively.
- Wet clothes and helicopter evacuations increase body heat loss.
- Remove wet clothes and cover casualty with hypothermia prevention gear.
- **Hypothermia is much easier to prevent than to treat!**

Tactical Field Care Guidelines

9. Penetrating Eye Trauma

If a penetrating eye injury is noted or suspected:

a) Perform a rapid field test of visual acuity.

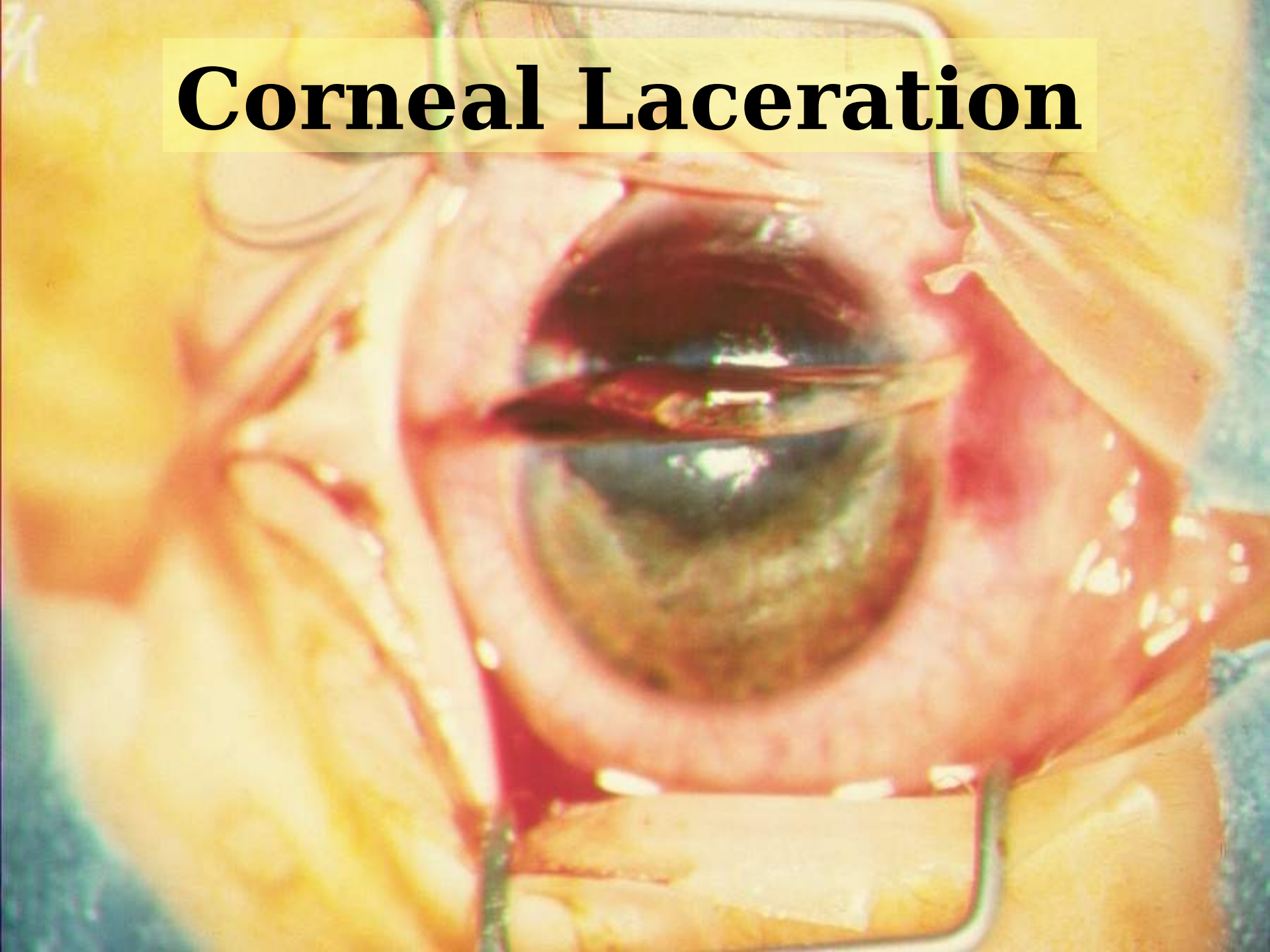
b) Cover the eye with a rigid eye shield (NOT a pressure patch.)

c) Ensure that the 400 mg moxifloxacin tablet in the combat pill pack is taken if possible, or that IV/IM antibiotics are given as outlined below if oral moxifloxacin cannot be taken.

Checking Vision in the Field

- Don’t worry about charts
- Determine which of the following the casualty can see (start with “Read print” and work down the list if not able to do that.)
  - Read print
  - Count fingers
  - Hand motion
  - Light perception

Corneal Laceration



Small Penetrating Eye Injury

tect the eye with a SHIELD, not a pa

Eye Protection

- Use your tactical eyewear to cover the injured eye if you don’t have a shield.
- Using tactical eyewear in the field will generally prevent the eye injury from happening in the first place!

Both injuries can result in eye infections that cause permanent blindness – GIVE ANTIBIOTICS!

Tactical Field Care Guidelines

10. Monitoring

Pulse oximetry should be available as an adjunct to clinical monitoring. **All individuals with moderate/severe TBI should be monitored with pulse oximetry.** Readings may be misleading in the settings of shock or marked hypothermia.

Pulse Oximetry Monitoring

- Pulse oximetry – tells you how much oxygen is present in the blood
- Shows the heart rate and the percent of oxygenated blood (“O2 sat”) in the numbers displayed
- 98% or higher is normal O2 sat at sea level.
- 86% is normal at 12,000 feet – low oxygen pressure altitude

Pulse Oximetry Monitoring

Consider using a pulse ox for these types of casualties:

- TBI – good O2 sat very important for a good outcome
- Unconscious
- Penetrating chest trauma
- Chest contusion
- Severe blast trau

Pulse Oximetry Monitoring

Oxygen saturation values may be inaccurate in the presence of:

- Hypothermia
- Shock
- Carbon monoxide poisoning
- Very high ambient light levels

Tactical Field Care Guidelines

11. Inspect and dress known wounds.
12. Check for additional wo

Triple-Option Analgesia

The simplified triple-option approach to battlefield analgesia has three primary goals:

1. To preserve the fighting force

2. To achieve rapid and maximal relief of pain from combat wounds

3. To minimize the likelihood of

Tactical Field Care Guidelines

13. Analgesia on the battlefield should generally be achieved using one of three options depending on the level of the casualty’s pain and the nature of his or her injuries.

Tactical Field Care Guidelines

13. <u>Option 1</u>

Mild to Moderate Pain
Casualty is still able to fight

TCCC Combat pill pack:

Tylenol - 650-mg bilayer caplet, 2 PO every 8 hour
Meloxicam - 15 mg PO once a day

Tactical Field Care Guidelines

13. <u>Option 2</u>

Moderate to Severe Pain

Casualty IS NOT in shock or respiratory distress AND

Casualty IS NOT at significant risk of developing either condition

- Oral transmucosal fentanyl citrate (OTFC) 800 ug
- Place lozenge between the cheek and the gum
- Do not chew the lozenge

Tactical Field Care Guidelines

13. Option 3

Moderate to Severe Pain

Casualty IS in hemorrhagic shock or respiratory distress OR

Casualty IS at significant risk of developing either condition

- Ketamine 50 mg IM or IN

Or

- Ketamine 20 mg slow IV or IO

* Repeat doses q30min prn for IM or IN
* Repeat doses q20min prn for IV or IO
* End points: Control of pain or development of nystagmus (rhythmic back-and-forth movement of the eyes)

Tactical Field Care Guidelines

Analgesia Notes

a. Casualties may need to be disarmed after being given OTFC or ketamine.

b. Document a mental status exam using the AVPU method prior to administering opioids or ketamine.

c. For all casualties given opiods or ketamine – monitor airway,

Tactical Field Care Guidelines

Analgesia Notes (cont)

d. Directions for administering OTFC:

- Recommend taping lozenge-on-a-stick to casualty's finger as an added safety measure OR utilizing a safety pin and rubber band to attach the lozenge (under tension) to the casualty's uniform or plate carrier.
- Reassess in 15 minutes
- Add second lozenge, in other cheek

Tactical Field Care Guidelines

Analgesia Notes (cont)

e. IV Morphine is an alternative to OTFC if IV access has been obtained

- 5 mg IV/IO
- Reassess in 10 minutes.
- Repeat dose every 10 minutes as necessary to control severe pain

Tactical Field Care Guidelines

Analgesia Notes (cont)

f. Naloxone (0.4 mg IV or IM) should be available when using opioid analgesics.

g. Both ketamine and OTFC have the potential to worsen severe TBI. The combat medic, corpsman, or PJ must consider this fact in his or her analgesic decision, but if the casualty is

Tactical Field Care Guidelines

Analgesia Notes (cont)

h. Eye injury does not preclude the use of ketamine. The risk of additional damage to the eye from using ketamine is low and maximizing the casualty's chance for survival takes precedence if the

Tactical Field Care Guidelines

Analgesia Notes (cont)

i. Ketamine may be a useful adjunct to reduce the amount of opioids required to provide effective pain relief. It is safe to give ketamine to a casualty who has previously received morphine or OTFC. IV Ketamine should be given over 1 minute.

i. If respirations are noted to be reduced

Tactical Field Care Guidelines

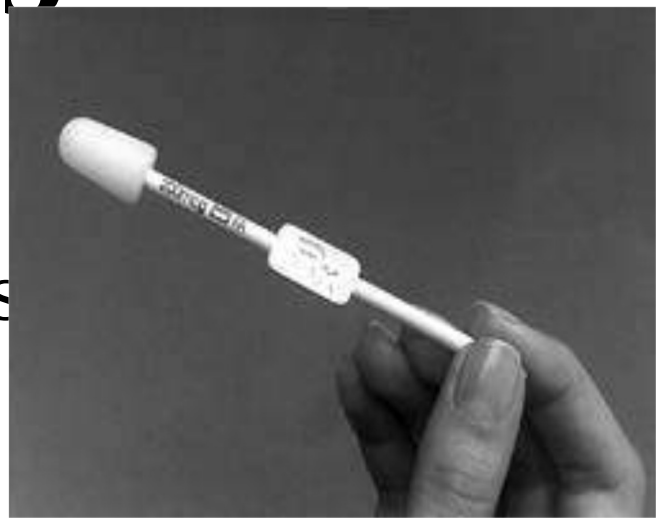
Analgesia Notes (cont)

k. Promethazine, 25 mg IV/IM/IO every 6 hours may be given as needed for nausea or vomiting.

l. Reassess – reassess – reassess!

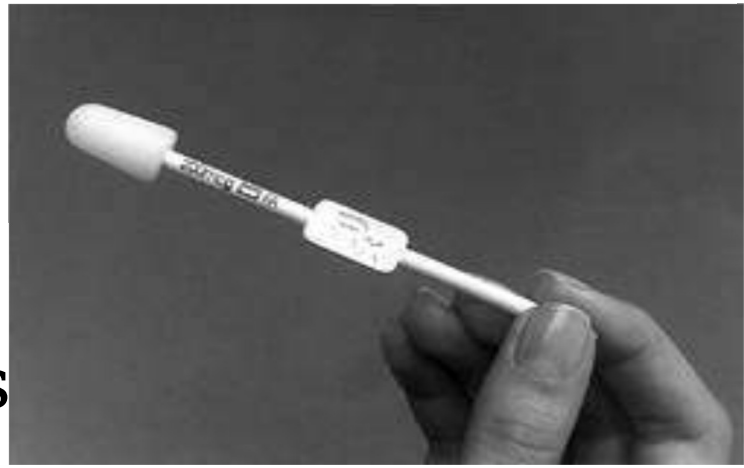
Additional Points on Battlefield Analgesia

Pain Control – Fentanyl Lozenge



- Does not require IV/IO access
- Can be administered quickly
  - Oral transmucosal fentanyl citrate, 800 µg (between cheek and gum)
  - **VERY FAST-ACTING; WORKS ALMOST AS FAST AS IV MORPHINE**
  - **VERY POTENT PAIN RELIEF**

Pain Control – Fentanyl Lozenge



Safety Note:

- There is an FDA Safety Warning regarding the use of fentanyl lozenges in individuals who are not narcotic tolerant.
- Multiple studies have demonstrated safety when used at the recommended dosing levels.
- Fentanyl lozenges have a well-documented safety record in Afghanistan and Iraq.

Ketamine

- At lower doses, potent analgesia and mild sedation
- At higher doses, dissociative anesthesia and moderate to deep sedation
- Unique among anesthetics because pharyngeal-laryngeal reflexes are maintained
- Cardiac function is stimulated rather than depressed
- Less risk of respiratory depression than morphine and fentanyl
- Works reliably by multiple routes

Ketamine

- Ketamine is recommended for battlefield analgesia in:
  - The Military Advanced Regional Aesthesia and Analgesia handbook
  - USSOCOM Tactical Trauma Protocols
  - Ranger Medic Handbook
  - Pararescue Procedures Handbook
  - Single agent surgical anesthesia in austere settings and developing

Ketamine - Safety

- Very favorable safety profile
- Few, if any, deaths attributed to ketamine as a single agent
- FDA Insert:
  - "***Ketamine has a wide margin of safety; several instances of unintentional administration of overdoses of ketamine (up to ten times that usually required) have been followed by prolonged but complete recovery.”***

Ketamine - Side Effects

- Respiratory depression and apnea can occur if IV ketamine is administered too rapidly.
- Providing several breaths via bag-valve-mask ventilation is typically successful in restoring normal breathing.

Pain Medications – Key Points

- **Aspirin, Motrin, Toradol, and other nonsteroidal anti-inflammatory medicines (NSAIDS) other than Mobic should be avoided while in a combat zone because they interfere with blood clotting.**
- Aspirin, Motrin, and similar drugs inhibit platelet function for approximately 7-10 days after the last dose.
- **You <u>definitely</u> want to have your platelets working normally if you get shot.**
- Mobic and Tylenol DO NOT interfere with platelet function – this is the primary feature that makes them the non-narcotic pain medications of choice

Warning: Morphine and Fentanyl

Contraindications

- Hypovolemic shock
- Respiratory distress
- Unconsciousness
- Severe head injury
- **DO NOT give morphine or fentanyl to casualties with these contraindications.**

Warning: Opioids and Benzos

- **Ketamine can safely be g**
  after a fentanyl lozeng
- **Some practitioners use**
  benzodiazepine medica
  such as midazolam to a
  ketamine side effects BUT
- **Midazolam may cause respiratory depression, especially when used with opioids**
- **Avoid giving midazolam to casualties who have previously gotten fentanyl**

Questions?